

ABSTRACT OF THE DISCLOSURE

The present invention is drawn to a safe, cost-effective, environmentally-friendly and ecologically-sound bioengineered pest eradication product and uses thereof. Immunological and genetic engineering techniques are used to generate monoclonal antibodies as well as viruses (phage) that display scFv heavy and/or light chain Ig fragments which exhibit high-avidity specific binding to cells of the microvilli of the midgut of imported fire ant queens. The specific monoclonal antibodies and phage displayed antibody Fab fragments are conjugated to a toxin for targeted delivery and destruction of imported fire ant queens, but not native species.